CLAIMS:

1.   A data processing unit (3) for registering a first image (A1) and a second
image (A2) of an object (2), the data processing unit (3) being set up to:
-           segment the images (A1, A2) automatically into various object constituents (a,
b, c);
-           register only those image areas (B1, B2) of selected object constituents (b)
which are relevant to a predetermined task.

2.   A data processing unit (3) for registering a first image (A1) and a second
image (A2) of an object (2), in particular a data processing unit (3) as claimed in claim 1,
which is set up to:
-           segment the images (A1, A2) automatically into various object constituents (a,
b, c);
-           register the image areas (B1, B2) of various object constituents (a, b, c) using
individually assigned registration methods.

3.   A data processing unit as claimed in claim 1 or 2, characterized in that the
segmented object constituents (a, b, c) are automatically classified.

4.   A data processing unit as claimed in claim 1 or 2, characterized in that a linear
registration is performed on several resolution levels, rigid bodies being registered on a
coarse grid followed by affine registration on a finer grid.

5.   A data processing unit as claimed in claim 1 or 2, characterized in that the first
image (A1) and/or the second image (A2) are/is (a) two- or three-dimensional computer
tomogram(s), in particular an X-ray photograph or a magnetic resonance image.

6.   A data processing unit as claimed in claim 1 or 2, characterized in that the
object is the chest (2) of a patient, the lungs (b) being the object constituent relevant to a
tumor diagnosis.

7.   A data processing unit as claimed in claim 1 or 2, characterized in that the segmentation is performed using a watershed transformation.

8.   An examination apparatus, comprising:
-          an imaging device (1) for producing images (A1, A2) of an object (2);
-          a data processing unit (3) as claimed in any one of the claims 1 to 7, coupled to the imaging device (1).

9.   A method for registering a first image (A1) and a second image (A2) of an object (2), comprising the following steps:
-          automatic segmentation of the images (A1, A2) into various object constituents (a, b, c);
-          registration of the image areas (B1, B2) of selected object constituents (b) relevant to a predetermined task.

10.   A method for registering a first image (A1) and a second image (A2) of an object (2), comprising the following steps:
-          automatic segmentation of the images (A1, A2) into various object constituents (a, b, c);
-          registration of the image areas (B1, B2) of various object constituents (a, b, c) using individually assigned registration methods.